ORDER NO. SD8001-1662

Service Manual

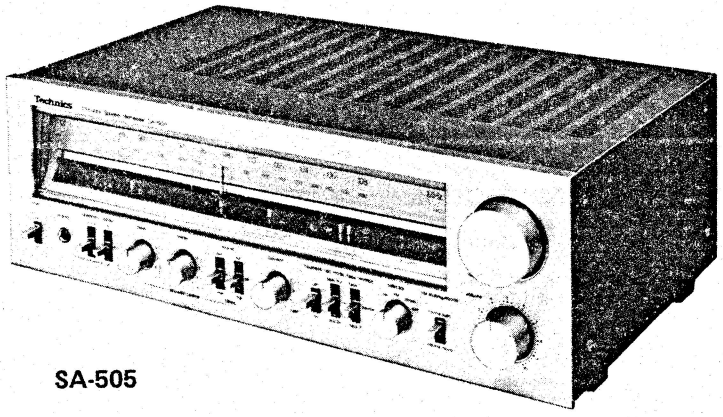
FM/AM Stereo Receiver

SA-505

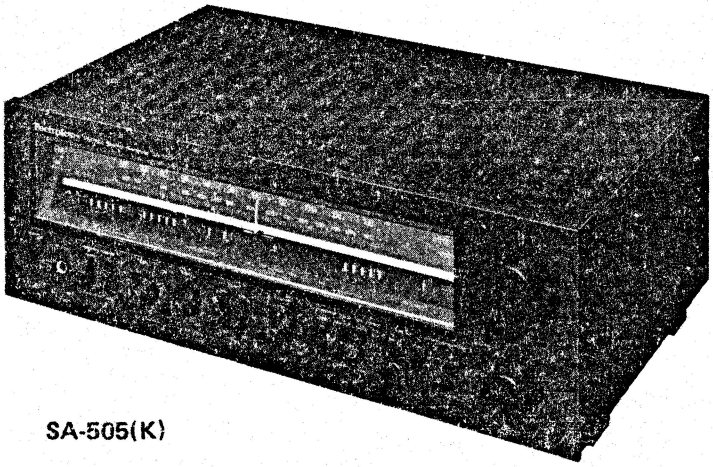
[E], [EG], [XGF], [XGH], [EB], [XE], [XA], [XAL]

SA-505(K)

[E], [XGH]



SA-505



SA-505(K)

***The colors of this model include silver and black. The black type model is provided with (K) in the Service Manual.**

Areas

- * [E] and [EG] are available in Scandinavia and European.
- * [XGF] is available in France.
- * [XGH] is available in Holland.
- * [EB] is available in Belgium.
- * [XE] is available in United Kingdom.
- * [XA] is available in Asia, Latin America, Middle East and Africa.
- * [XAL] is available in Australia.

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TECHNNICAL SPECIFICATIONS

Specifications are subject to change without notice for further improvement.

[DIN 45 500]

AMPLIFIER SECTION

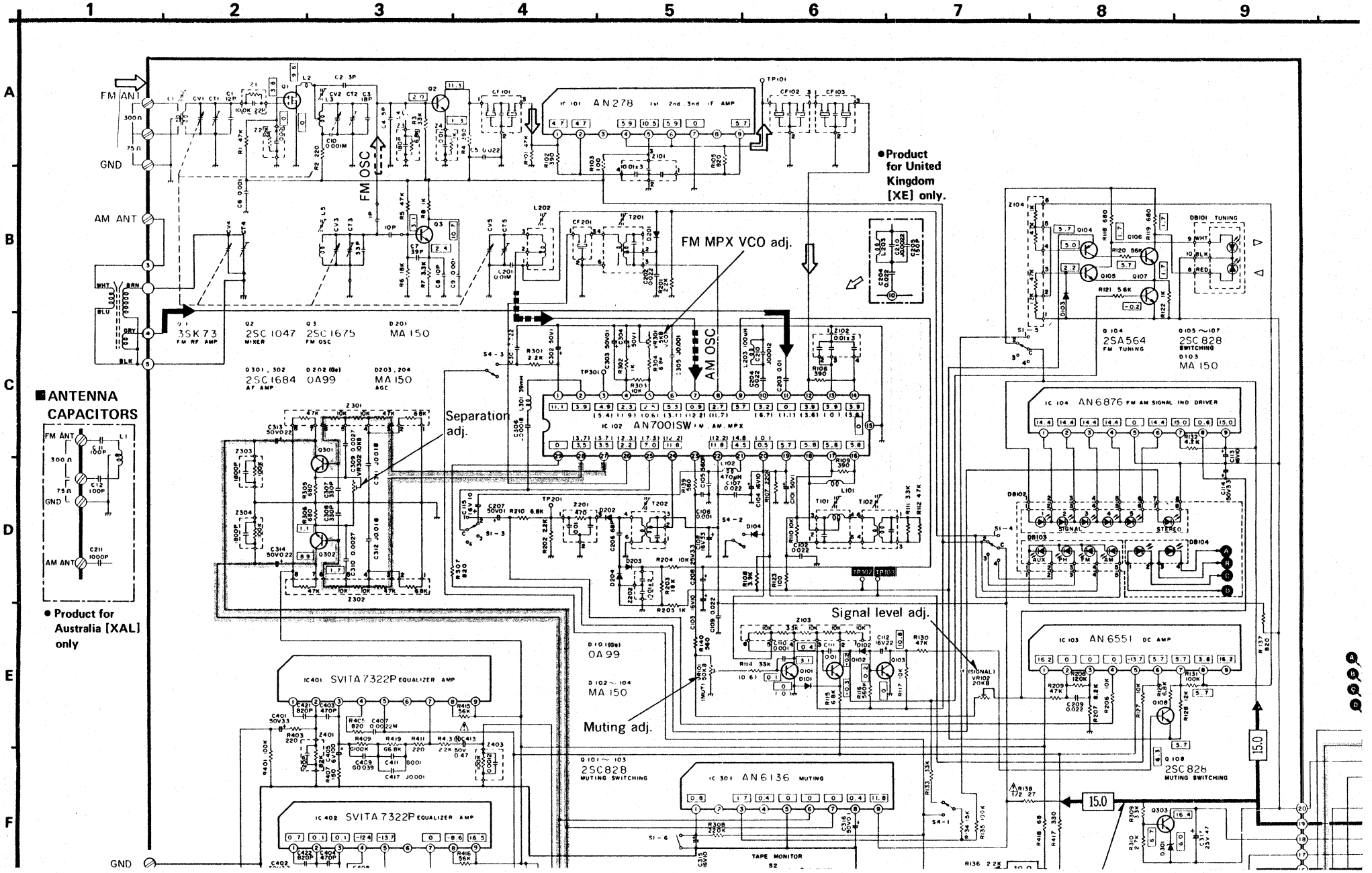
20 Hz ~ 20 kHz continuous power output both channels driven		2 x 63W (4Ω), 2 x 63W (8Ω)
40 Hz ~ 16 kHz continuous power output both channels driven		2 x 63W (4Ω), 2 x 63W(8Ω)
1 kHz continuous power output both channels driven		2 x 80W(4Ω), 2 x 70W(8Ω)
Total harmonic distortion		
rated power at 20 Hz ~ 20 kHz		0.08% (4Ω), 0.04% (8Ω)
rated power at 40 Hz ~ 16 kHz		0.08% (4Ω), 0.04% (8Ω)
rated power at 1 kHz		0.04% (4Ω), 0.04% (8Ω)
half power at 20 Hz ~ 20 kHz		0.02% (8Ω)
half power at 1 kHz		0.009% (8Ω)
−26 dB power at 1 kHz		0.1% (4Ω)
50 mW power at 1 kHz		0.15% (4Ω)
Intermodulation distortion		
rated power at 250 Hz: 8 kHz= 4:1, 4Ω		0.08%
rated power at 60 Hz: 7 kHz=4:1, SMPTE, 8Ω		0.04%
Power bandwidth both channels driven, −3 dB		10 Hz ~ 35 kHz (4Ω)
Damping factor		17(4Ω), 34(8Ω)
Input sensitivity and impedance	PHONO	2.5 mV/47kΩ
	AUX	150 mV/27kΩ
	TAPE 2	150 mV/27kΩ
	TAPE 1 REC/PLAY	180 mV/27kΩ
PHONO maximum input voltage (1 kHz, RMS)		150 mV
S/N		
rated power (4Ω)	PHONO	70 dB (80 dB, IHF, A, 8Ω)
	AUX	88 dB (95 dB, IHF, A, 8Ω)
−26 dB power (4Ω)	PHONO	64 dB
	AUX	66 dB
50 mW power (4Ω)	PHONO	60 dB
	AUX	60 dB
Frequency response	PHONO	RIAA standard curve ±0.3 dB (30 Hz ~ 15 kHz)
	AUX	7 Hz ~ 50 kHz (−1 dB) ±0.2 dB(20 Hz ~ 20 kHz)

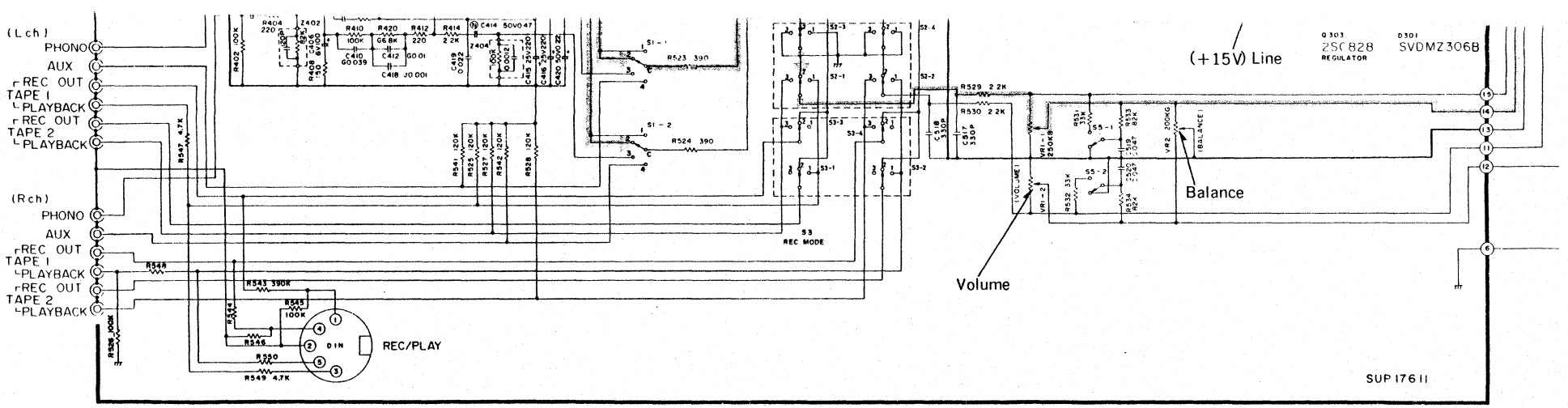
Technics

Matsushita Electric Trading Co., Ltd.
P.O. Box 288, Central Osaka Japan

■ SCHEMATIC DIAGRAM...MODEL **SA-505**

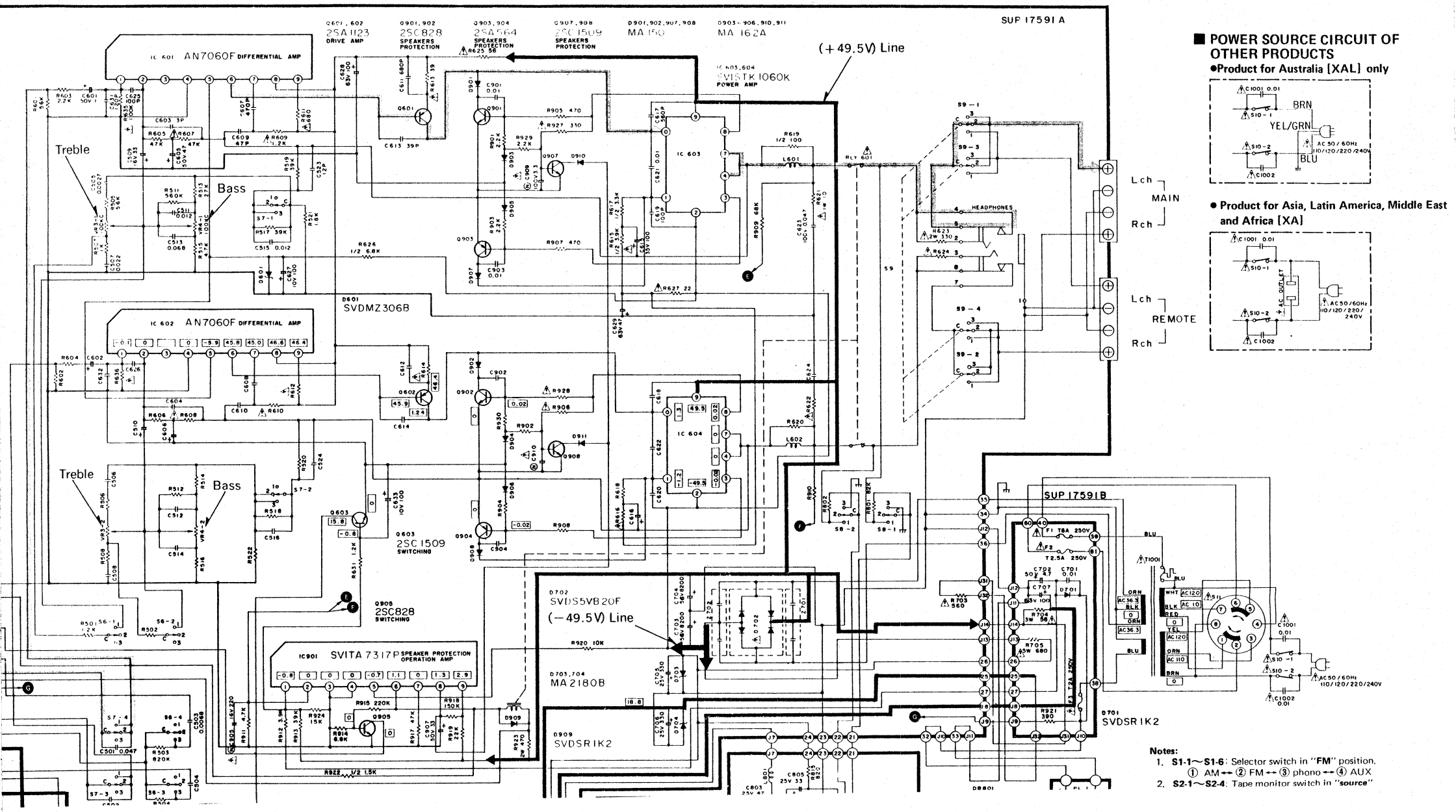
(This schematic diagram may be modified at any time with the development of new technology.)





Shorting Switch

This unit uses a shorting switch. As illustrated below, the circuit is shorted to the next circuit without be
In the circuit diagram, the shaded area represents the common terminal.



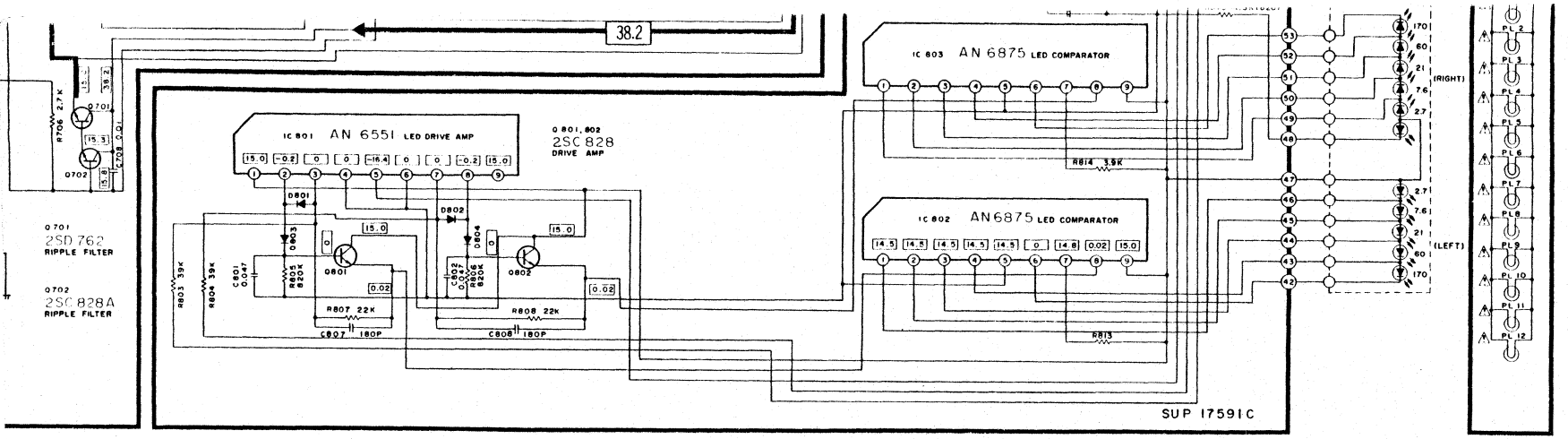
■ POWER SOURCE CIRCUIT OF OTHER PRODUCTS

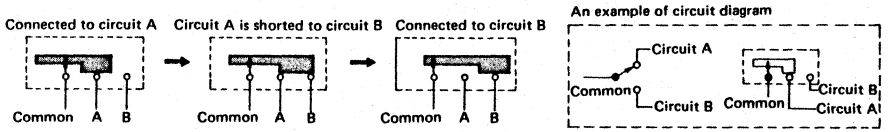
●Product for Australia [XAL] only

● Product for Asia, Latin America, Middle East and Africa [XA]

Notes:

1. **S1-1～S1-6**: Selector switch in "**FM**" position.
   ① AM ↔ ② FM ↔ ③ phono ↔ ④ AUX
2. **S2-1～S2-4**: Tape monitor switch in "**source**"

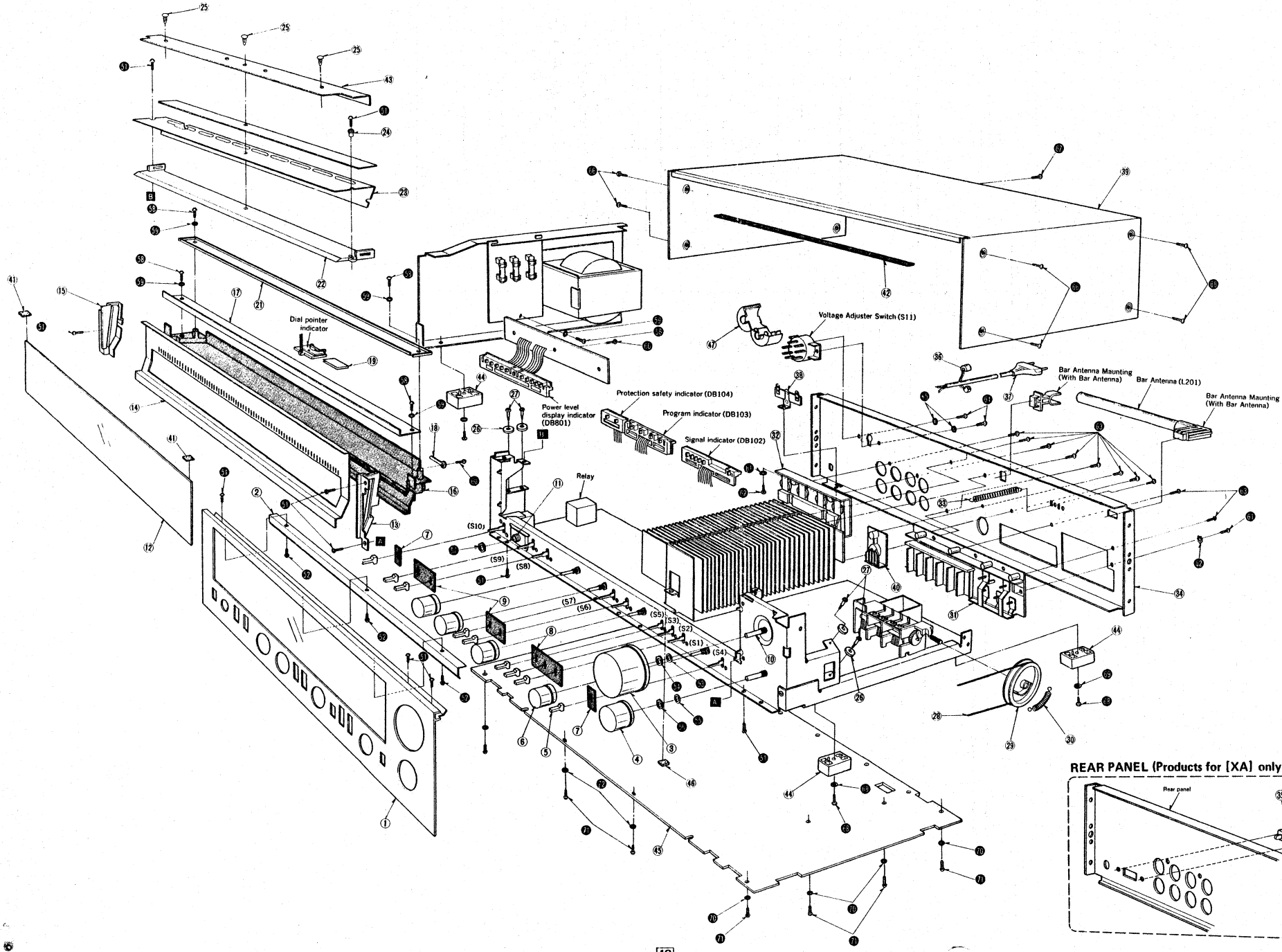




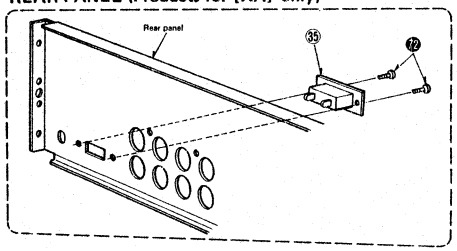
position.
① tape 1 ▶ 2 ⇄ ② source ⇄ ③ tape 2 ▶ 1

3. **S3-1～S3-4**: Rec mode switch in "**source**" position. ① tape 1 ⇄ ② source ⇄ ③ tape2
4. **S4-1～S4-3**: FM muting/mode switch in "**ON/FM AUTO**" position.
5. **S5-1, S5-2**: Loudness switch in "**OFF**" position.
6. **S6-1～S6-4**: Boost/filter switch (high) in "**OFF**" position.
① high boost ⇄ ② off ⇄ ③ high filter
7. **S7-1～S7-4**: Boost/filter switch (low) in "**OFF**" position.
① low boost ⇄ ② off ⇄ ③ low filter
8. **S8**: Power display rang selector switch in "**X1**" position.
① X0. 1 ⇄ ② X1 ⇄ ③ off
9. **S9**: Speaker selector switch in "**MAIN**" position.
① remote ⇄ ② main ⇄ ③ main + remote
10. **S10**: Power source switch in "**ON**" position.
11. **S11**: Voltage adjuster switch in "**240V**" position.
240V ⇄ 220V ⇄ 110V ⇄ 120V
12. ⚠ indicates that only parts specified by the manufacturer be used for safety.
13. Indicated voltage values are the standard values for the unit measured by the DC electronic circuit tester (high-impedance) with the chassis taken as standard. Therefore, there may exist some errors in the voltage values, depending on the internal impedance of the DC circuit tester.
▭ Not apply signal to set and muting switch to OFF condition.
( ) AM signal reception.
14. ⋯⋯ AF signal lines ⟹ FM signal lines
➡ AM signal lines.

■ EXPLODED VIEW



REAR PANEL (Products for [XA] only)



■ REPLACEMENT PARTS LIST...Cabinet, Chassis and Paking Parts

NOTES:
1. Part numbers are indicated on most mechanical parts Please ust this part number of rparts orders.
2. ⚠ indicates that only parts specified by the manufacturer be used for safety.
3. ■ marked parts are used for black type only, while O-marked parts are for silver type only.
4. Parts other than ■ -and O-marked are used for both black and silver types.
5. Bracketed indications in Ref. No. columns specify the area. Parts without these indications can be used for all areas.

Ref. No.		Part No.	Part Name &Description
CABINET and CHASSIS PARTS			
1	O	SGWA505D	Panel, Front Ass'y
1	■	SGWA505KD	Panel, Front Ass'y (Black)
2	O	SDH493	Bracket, Front Panel
2	■	SDH493-1	Bracket, Front Panel (Black)
3	O	SBN879-1	Knob, Tuning
3	■	SBN879-2	Knob, Tuning (Black)
4	O	SBN883-1	Knob, Volume
4	■	SBN883-2	Knob, Volume (Black)
5	O	SBD29	Knob, Lever Switch
5	■	SBD29-1	Knob, Lever Switch (Black)
6	O	SBN887-1	Knob, Selector, Balance, Treble and Bass
6	■	SBN887-2	Knob, Selector, Balance, Treble and Bass (Black)
7		SHS2425	Fiber, Lever Switch
8		SHS2429	Fiber, Lever Switch
9		SHS2427	Fiber, Lever Switch
10		SDT8061	Shaft, Tuning
11		XCJ6P21E-A	Jack, Headphones
12	O	SKD3810	Plate, Dial
12	■	SKD3811	Plate, Dial (Black)
13	O	SGX6753	Escutcheon, Dial Scale (Right)
13	■	SGX6753-1	Escutcheon, Dial Scale (Right), (Black)
14	O	SDH495	Dial Scale
14	■	SDH495-2	Dial Scale (Black)
15	O	SGX6755	Escutcheon, Dial Scale (Left)
15	■	SGX6755-1	Escutcheon, Dial Scale (Left), (Black)
16		SGX6749	Escuteheon, Dial Scale
17		SUG71	Mirror, Dial Scale
18		SXE513-1	Terminal, Lead Wire
19		SDA83	Paper, Pointer Slide
21		SUV457	Bracket, Dial Pointer Cover
22		SDL25	Reflector Plate
23		SHP9291	Paper, Reflector
24		SHR9339	Spacer, Reflector Plate
25		SHRA916-2	Lock Pin, Dial Lamp Printed Circuit Board M'tg
26		SDR3	Pulley, Dial Cord
27		SHD3X21F-1	Screw, Pulley M'tg
28		SDZ051-2	Cord, Dial 180 cm (70-15/16)
29		SDD47-1	Drum, Variable Capacitor
30		SDSA4121	Spring, Dial Cord
31		SJF8017	Terminal, Input and Antenna
32		SJF5811	Terminal, Speakers
33		SUS175	Spring, Dial Pointer Cord
34 [E]		SGP2190A	Rear Panel
34 [EG, XGF, XGH, EB, XE]		SGPA505D	Rear Panel, SGP2190A with Name Plate (SGT21790)
34 [XA]		SGP2190-1A	Rear Panel
34 [XAL]		SGP2190-2A	Rear Panel
35 [XA] only	⚠	SJS9205-1	Socket, AC Outlet
36 [E, EG, XGF, XGH, EB, XA]		SFSR4N4	Bushing, AC Cord (Product Part No. SHR127)
36 [XE]		SFSR5N4	Bushing, AC Cord (Product Part No. SHR129)
36 [XAL]		SHR131	Bushing, AC Cord
37 [E, EG, XGF, XGH, EB]	⚠	RJA23ZC	AC Cord, Power Source
37 [XE]	⚠	RJA45ZC	AC Cord, Power Source
37 [XAL]	⚠	QFC1207M	AC Cord, Power Source
37 [XA]	⚠	SJA111	AC Cord, Power Source

Ref. No.		Part No.	Part Name & Description
38		SJR205	Terminal Strip, 2P (Except product for [XA])
39 [Other Arers]	O	SKC290H	Cabinet
39 [Other Arers]	■	SKC290B	Cabinet (Black)
39 [XE] only	O	SYK909	Cabinet
40		SJS6511	Socket, DIN (REC/PLAY)
41		SHG1509	Cushion, Dial Plate
42		SHS6101-1	Fiber, Cabinet
43		SHP9313	Paper, Reflector Plate
44		SKL237	Foot, Set
45		SYU211-1	Bottom Board
46		SHG6093	Fiber, Transistor M'tg
47		SUV453	Cover, Voltage Adjuster
SCREWS WASHER and NUTS			
●		**XTB3+10BFN**	Screw, Tapping, ⊕ 3 x 10
●		**XTB3+6BFN**	Screw, Tapping, ⊕ 3 x 6
●		**XWV11**	Washer, Spring, ø11
●		**XNS11**	Nut, M11
●		**XWV8**	Washer, Spring, ø8
●		**XNS8**	Nut, M8
●		**XNS12**	Nut, M12
●		**XTV3+10BFN**	Screw, Tapping, ⊕ 3 x 10
●		**XWG3**	Washer, Plain, ø3
●		**XTB3+12BFZ**	Screw, Tapping, ⊕ 3 x 12
●		**XTB3+8BFZ**	Screw, Tapping, ⊕ 3 x 8
●		**XWC3B**	Washer, Toothed, ø3
●		**XTB3+10BFZ**	Screw, Tapping, ⊕ 3 x 10
●		**XSC3+6BVS**	Screw, ⊕ 3 x 6
●		**XWA3BFZ**	Washer, Spring ø3
●	O	**XTB4+8BFN**	Screw, Tapping, ⊕ 4 x 8
●	■	**XTB4+8BFZ**	Screw, Tapping, ⊕ 4 x 8 (Black)
●	O	**XTB3+8BFN**	Screw, Tapping, ⊕ 3 x 8
●	■	**XTB3+8BFZ**	Screw, Tapping, ⊕ 3 x 8 (Black)
●		**XTV3+10BFN**	Screw, Tapping, ⊕ 3 x 10
●		**XWG3**	Washer, Plain, ø3
●		**XTV3+12BFN**	Screw, Tapping, ⊕ 3 x 12
●		**XWG3**	Washer, Plain ø3
● [XA] only		**XTN3+8BFZ**	Screw, Tapping 3 x 8
ACCESSORY			
A1		SSA267	Cord, FM Indoor Antenna
A2 [XA] only		SJP5213-1	Plug Adapter, AC Power
A3 [XA] only		SJP5215	Plug Adapter, AC Power
PACKING PARTS			
P1		SPP651	Polyethylene Bag
P2 [Other Arers]		SPS2531	Pad, Left Side
P2 [XAL] only		SPS2531-1	Pad, Left Side
P3 [Other Arers]		SPS2533	Pad, Right Side
P3 [XAL] only		SPS2533-1	Pad, Right Side
P4 [Other Arers]		SPG2365	Carton Box
P4 [XGF] only		SPG2367	Carton Box
P4 [XAL] only		SPG2371	Carton Box
P5 [Other Arers]		SQF10473	Instructions Book, Printed Matter
P5 [XA] only		SQF10481	Instructions Book, Printed Matter

■ REPLACEMENT PARTS LIST ..... Electrical Parts

Ref. No.		Part No.	Part Name & Description
INTEGRTED CIRCUITS			
IC101		AN278	IC, FM IF Amplifier
IC102		AN7001SW	IC, AM Converter, FM IF Amplifier, FM Detector & Stereo Decoder (MPX)
IC103		AN6551	IC, Operation Amplifier
IC104		AN6876	IC, FM AM Signal Indicator Driver
IC301		AN6136	IC, AF Muting
IC401, 402		SVITA7322P	IC, Equalizer Amplifier
IC601, 602		AN7060F	IC, Tone Amplifier
IC603, 604		SVISTK1060K	IC, Power Amplifier
IC801		AN6551	IC, LED Driver Amplifier
IC802, 803		AN6875	IC, LED Comparator
IC901		SVITA7317P	IC, Speaker protection Operation Amplifier

Ref. No.		Part No.	Part Name & Description
TRANSISTORS			
Q1		3SK73-GR	Transistor, FM-RF Amplifier (Use in ranks G or R)
Q2		2SC1047-D	Transistor, FM Mixer
Q3		2SC1675-L1	Transistor, FM Oscillator
Q101, 102, 103 105, 106, 107 108, 303		**2SC1328-T**	Transistor, Muting Switching & Regulator
Q104		**2SA666AI-R**	Transistor, FM Tuning
Q301, 302		2SC1684-S	Transistor, AF Amplifier (Use in ranks S or T)
Q601, 602		2SA1123-R	Transistor, Pre Drive Amplifier (Use in ranks S, T or R)
Q603		2SC1509F-R	Transistor, Switching
Q701		2SD762-O	Transistor, Ripple Filter (Use in ranks O or P)
Q702		**2SC1328-T**	Transistor, Ripple Filter
Q801, 802, 905		**2SC1328-T**	Transistor, Buffer
Q901, 902		**2SC1328-T**	Transistor, Power Drive
Q903, 904		**2SA666AI-R**	Transistor, Power Drive
Q907, 908		2SC1509F-R	Transistor, Speakers Protection
DIODES			
D101, 202		**2-OA99**	Diode, Switching & AM Detector
D102, 103, 104 201, 203, 204		**MA162A**	Diode, Detector, Bias, & A, G, C
D301, 601		SVDMZ306B	Diode, 6V Zener
D701, 909		**SVDSR1K2**	Diode, Bias
D702	⚠	SVDS5VB20F	Rectifier
D703, 704		MA2180B	Diode, 8V Zener
D801, 802, 803 804, 901, 902 907, 908		**MA162A**	Diode, Detector
D903, 904, 905 906, 910, 911		**MA162A**	Diode, Bias
COILS and TRANSFORMERS			
L1		SLA4N15	Coil, FM Antenna
L2		**RLQY25S2**	Coil, Choke
L3		SLD4P13	Coil, FM RF Detector
L4		RLQY15G5-Y	Coil, Choke
L5		SLO4P63-P	Coil, FM Oscillator
L101		SLQX180-2	Coil, Choke
L102		SLQX471-M	Coil, Choke
L201		SLF2D63	Coil, AM Antenna
L202		SLO2C15	Coil, AM Oscillator
L203		SLQX101-3M	Coil, Choke
L301		SLQX393-1Z	Coil, Choke
L601, 602		SLQY15G-3P	Coil, Choke
L801		SLQX101-3M	Coil, Choke
T101		SLI4C515	Transformer, FM IF
T102		SLI4C517	Transformer, Discriminator
T201		SLI2C129R-M	Transformer, AM IF
T202		SLI2C413R	Transformer, AM IF
T1001[Other Arers	⚠	SLT5P173-W	Transformer, Power Source
T1001[XAL] only	⚠	SLT5P177-W	Transformer, Power Source
CERAMIC FILTERS			
CF101, 102, 103		SVFE107MM-A	Ceramic Filter, 10.70 MHz (Red)
		SVFE107MM-B	Ceramic Filter, 10.68MHz (Blue)
		SVFE107MM-C	Ceramic Filetr, 10.72 MHz (Orange)
		SVFE107MM-D	Ceramic Filter, 10.66 MHz (Brown)
		SVFE107MM-E	Ceramic Filter, 10.74 MHz (Grey)
			(Use pair ranks as same as CF101, 102 and 103)
CF201[Other Arers		SVFSFU450B3	Ceramic Filter, AM 457 kHz
CF201 [XE] only		SVFSFU468B	Ceramic Filter, AM 475kHz
VARIABLE RESISTORS			
VR1		EWF2F25BF5S	Volume Control, 250kΩ(B)
VR2		EVH64F25G25S	Balance Control, 200kΩ(W)
VR3		EWK33F25C15S	Treble Control, 100kΩ(C)
VR4		EWK34F25C15S	Bass Control, 100kΩ(C)

Ref. No.		Part No.	Part Name & Description
VR101		**EVLS3AA00B54**	Muting Level Adjustment, 50kΩ(B)
VR102		**EVLS3AA00B24**	Signal Level Adjustment, 20kΩ(B)
VR301		EVTS3MA00B53	FM MPX VCO Adjustment, 5kΩ(B)
VR302		**EVLS3AA00B14**	Separation Adjustment, 10kΩ(B)
COMPONENT COMBINATIONS			
Z1		EXRP220K104C	Component Combination, 100kΩ & 22pF
Z2		EXRP102Z223C	Component Combination, 220kΩ & 0.001μF
Z3		EXRP181K682C	Component Combination, 6.8kΩ & 180pF
Z4		EXRP103P102C	Component Combination, 1kΩ & 0.01μF
Z101, 102		EXF3YL01C	Component Combination, 0.01μF (X3)
Z103		EXBH85071K	Component Combination, 70Ω (X5)
Z104		EXBH84072K	Component Combination, 7kΩ (X4)
Z201		EXRF203Z471S	Component Combination, 470Ω & 0.02μF
Z202		EXRFS203ZS	Component Combination, 0.01μF (X2)
Z301, 302		EXBH85063K	Component Combination, 6kΩ (X5)
Z303, 304		EXRP182K104C	Component Combination, 100kΩ & 0.0018μF
Z401, 402		EXRP121K823C	Component Combination, 82kΩ & 120pF
Z403, 404		EXRP122K104C	Component Combination, 100kΩ& 0.0012μF
Z701, 702		EXRFS203ZS	Component Combination, 0.01μF (X2)
VARIABLE CAPACITORS			
CV1~CV5 (CT1~CT5)		ECVC751K144B	Variable Capacitor, with Trimmer
FUSES			
F1	⚠	XBA2C50TR0	Fuse, T5A (250V) Power Source
F2	⚠	XBA2C25TR0	Fuse, T2.5A (250V), Power Source
F3	⚠	XBA2C20TR0	Fuse, T2A (250V), Power Source
SWITCHES			
S1		SSR149	Switch, Selector
S2		SSL157	Switch, Tape Monitor
S3		SSL161	Switch, Recording Mode
S4		SSL155	Switch, FM Muting
S5		SSL149	Switch, Loudness
S6, 7		SSL159	Switch, Acoustic High & Acoustic Low
S8		SSL151	Switch, Puwer Display Range Selector
S9		SSL163	Switch, Speaker
S10	⚠	ESL21210S	Switch, Power Source
S11	⚠	ESE37200	Switch, Voltage Adjuster
LAMPS			
PL1~12	⚠	XAMR68S17	Lamp Dial, 80mA (8V)
INDICATORS			
DB101		SWV13	Indicator, Dial Pointer
DB102		LN06126P-1	Indicator, Signal
DB103		LN04427P	Indicator, Program
DB104		LN02128P	Indicator, Protection & Safety
DB801		LN11124P-1	Indicator, Power Level Display
RELAY			
RLY601	⚠	SSY69	Relay, Speaker Protection

NOTES:
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